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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,142	06/07/2000	Shigefumi Masuda	FUJI 17.390	8638

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EXAMINER

SHANG, ANNAN Q

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/589,142

Applicant(s)

MASUDA ET AL.

Examiner

Annan Q. Shang

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/17/06 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Curry et al (3,750,022)** in view of **Furukawa et al (5,987,069)**.

As to claim 1, note the **Curry et al** reference figures 1, 3 and 5 disclose a system for minimizing upstream noise in a subscriber response cable television system and further disclose a system for reducing noise in a signal line, through which signals and downward signals are transmitted between a center (Head End "HE" 13) and terminals comprising:

Curry teaches a noise-reduction device (Line Control Circuit 'Line-CC' 27 and Noise Measuring Equipment 'Noise-ME' 25 'Line-CC/Noise-ME' 27/25 figs.1, 5, col. 5, lines 5-10 and col. 20, lines 12-34), provided between HE 13 'center' and a plurality of PH-Subs 87, 57, 39 and 29 'terminals,' detects a noise increase regarding the upstream "upward" signals on the signal line and generates a control signal indicative of the noise increase, and is directly triggered by the control signal which instructs Switchable Attenuators (SA) 35 to control attenuation of the upstream signals by an increased amount (col. 3, lines 34-41); note PH-Sub 29 further includes Noise-ME 25, such as Noise-ME 25 at HE 13, col. 20, lines 12-34, and performs identical functions as NME 25 at HE 13, i.e., monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to LCC 27 and any noise exceeding a preselected threshold level causes NME 25 of PH-Sub 29 to generate a signal which causes the LCC 27 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference (col. 3, lines 31-42);

In other alternate embodiment Curry further teaches that the Noise-ME 25 may be located at the PH-Sub 27 (col. 20, lines 12-19) to boost a transmission level of the upward signals by an amount compensating for attenuation of the upward signals by the Noise-ME 25 or in other words to control the gain as a function of frequency across the bandwidth of either or both of the upstream and downstream amplifiers in its locality.

Curry fails to explicitly teach where a noise measuring device, provided between the center and the terminals, detects a noise increase regarding the upward signals on the signal line spontaneously without a noise measurement command from the center to

generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center

However, note the **Furukawa** reference figures 3-7, discloses a digital bidirectional communications transceiver "a noise measuring device," (col.3, line 49-col.4, line 7) provided between the center and the terminals, which detects a noise increase regarding the upstream and downstream signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center (col.4, line 31-col.5, line 4, col.11, lines 13-23, col.13, lines 5-30 and col.15, line 41-col.16, line 10).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Furukawa into the system of dynamically detect other noise signals, such as co-channel interference from neighboring upstream or downstream channels and attenuate the signals accordingly to provide an efficient system.

As to claim 2, Curry further discloses where Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 including a Noise-ME 25 "noise-level-check unit" which compares the signal component and a noise component and detects a noise increase based on the comparison or well known signal to noise ration (col. 3, lines 31-41 and col. 9, lines 3-8) and Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 further includes SA 35 "an

attenuator” that attenuates the upstream signals by the increased amount if the Noise-  
ME 25 detects the increase, and transmits a tone signal via downward signals if Noise-  
ME 25 detects the noise increase (col. 3, lines 59-65 and col. 20, lines 15-30).

As to claim 3, the claimed noise-control-device including a  
tone-detection unit which detects the tone signal is met by PH-Sub 39 which operates in  
response to instructions from LPC 16 or Line-CC to vary amplifier gain in the presence  
of noise. Command register 213 of Figure 10 registers commands from control signals  
(col. 3, lines 59-65); the claimed “variable amplifier to boost amplification of upward  
signals by an amount compensating for the attenuation of the upward signals by said  
attenuator” is met as noted above by variable amplifier 43 which increases gain by  
substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 4, the claimed “tone or more noise reduction devices . . . are provided  
in one or more of a two-way amplification unit and splitter units provided between the  
center and the terminals” is met by phantom subscriber unit 29 and SA 35 being  
provided within line control unit 27 (fig. 3) and includes switching units 111, 113 . . . and  
filters 106, 107 . . . as well as amplifiers 137 and 139 which constitute a “bi-directional  
amplification unit” as claimed.

As to claim 5, the claimed boosting transmission levels by an amount  
“compensating for a total attenuation of the upward signals of all of said one or more  
noise-reduction devices” is met as noted above by boosting signals using variable  
amplifier 43 to increase gain by substantially the same amount as the signal is  
attenuated (col. 9, lines 46-58).

As to claim 7, the obtaining of a level of a signal component is met as noted above by detecting a noise level with Noise-ME 25. As is well known and taught in col. 9, lines 3-8, a signal to noise ratio is determined during this process. As taught in col. 3, lines 59-65 an upper pilot tone may be inserted for testing or control purposes into the 116 to 120MHz band, meeting the claimed high frequency signal included within a frequency range and command register 213 (fig. 10), registers commands from control signals. Curry inherently teaches the claimed "subtraction unit" to obtaining a noise level from an upstream signal (col. 9-10), note the numerous mathematical operations including subtraction to obtain signal levels are performed. Noise-ME 25 also compares a noise level with a threshold or "reference level" and detects a noise increase based on the comparison (col. 3, lines 34-42).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Curry et al. (3,750,022)** in view of **Furukawa et al (5,987,069)** as applied to claim 1 above, and further in view of **Schwartzman et al. (6,385,773)**.

As claim 6, Curry further teaches where the noise-reduction device comprising a unit for obtaining a level of a signal component demodulated through coherent detection of the upward signals (col.3, lines 34-42), note line control circuit 27 includes a unit for sampling noise to monitor and measure noise in a conventional manner (col.9, lines 3-8), a signal to noise ratio is determined during this process to determine a measure of noise.

Curry as modified by Furukawa, fails to teach obtaining a level of noise "through detection of noises observed on the signal line during a time period when no signal component is present."

However, note **Schwartzman** teaches a system and method for determining an optimum upstream frequency channel based on noise and bit-error-rate assessments and further teaches determining an intrinsic power level as a measure of the noise level at a time when no data or signal is being transmitted (col. 11, lines 38-51), comparing a signal level to the level of a noise component (fig. 4, step 408).

Therefore it would have been obvious for one skilled in the art at the time of the invention to modify the system of Curry as modified by Furukawa by monitoring a base noise measurement as taught by Schwartzman in order to ensure a high rate of data integrity (col. 7, lines 57-58).

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection. The amendment to the



independent claim necessitated the new ground(s) of rejection discussed above. This office action is a non-final.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

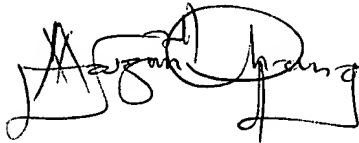
Locklear, Jr. et al (6,483,870) disclose data communication using a modifiable number of XDSL modems.

Brown (5,814,737) discloses apparatus and method of detecting an ultrasonic signal.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q. Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-400pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Christopher S. Kelley** can be reached on **571-272-7331**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free)**.

A handwritten signature in black ink, appearing to read 'Annan Q. Shang', with a large, stylized loop at the end.

**Annan Q. Shang**